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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/551,494	04/18/2000	Frank Meulewaeter	021565-075	2755

21839            7590            06/27/2003  
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EXAMINER
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EPPS, JANET L

ART UNIT	PAPER NUMBER
1635	22

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application N .</b>	<b>Applicant(s)</b>
	09/551,494	MEULEWAETER ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Janet L. Epps-Ford, Ph.D.	1635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 29 January 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 32,34,38-43,45 and 49-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 39-41 and 50-52 is/are allowed.
- 6) Claim(s) 32,34,38,42,43,45 and 49 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Claims 32, 34, 38, 42-43, 45 and 49 are rejected under 35 USC § 103(a) as being unpatentable over Fitzmaurice et al. and Masuta et al. in view of Grierson et al. and further in view of Kumagai et al. (US Patent No. 6,303,848 B1) and Routh et al. for the reasons of record set forth in the Official action mailed 12-14-01, and those reasons set forth below.

Applicant's arguments filed 12-30-02 have been fully considered but they are not persuasive. Applicants traverse the instant rejection on the grounds that the examiner has not satisfied the requirement of providing actual evidence, from the prior art, providing motivation for making the claimed invention and of a reasonable expectation of success for practicing the claimed invention. Moreover, Applicants provide a Declaration by Dr. Meulewaeter, wherein makes a distinction between the examiner's interpretations of the terms "satellite RNA", "satellite DNAs", and satellite viruses. Applicants finally conclude that it is clear that persons skilled in the art were not motivated to use satellite RNA viruses as tools for silencing endogenous plant genes, but rather used autonomous RNA viruses, and that there was no reasonable expectation of success in using satellite viruses as vectors for silencing of endogenous plant genes.

Contrary to Applicant's assertions, the prior art provides both motivation and an expectation of success for using satellite viruses as vectors for silencing of endogenous genes in plants. For example, in regards to expectation of success Fitzmaurice et al. provides a recombinant expression system for modifying the genome of a satellite RNA virus, satellite

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tobacco mosaic virus, for the introducing heterologous RNA into plant cells, wherein the exogenous RNA segment may also be sense or antisense (see page 13, lines 14-37).

Routh et al. provides functional studies where several distinct regions of the STMV genome is deleted and the mutant remain biologically active with the aid of its helper virus. Moreover, Routh et al. concludes that the STMV a satellite virus "may be a good candidate for use as a broad host range expression vector." (see page 126, last paragraph). Kumagai et al. provides a method for conferring disease resistance in plant host comprising the use of viral expression vectors (col. 2, lines 30-39). The viral expression vectors of Kumagai et al. are preferably derived from RNA plant viruses, and furthermore wherein said RNA plant virus is an RNA satellite virus such as tobacco necrosis satellite virus, see col. 3, lines 60-61.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of filing to modify the teachings of Fitzmaurice et al. and Masuta et al. with the teachings of Grierson et al., Kumagai et al. (US Patent No. 6,303,848 B1) and Routh et al. One of ordinary skill in the art would have been motivated to use satellite RNA viruses to design gene silencing vectors since the disclosure of Kumagai et al. expressly states that the disclosed viral expression vectors, which includes satellite RNA viruses, can be used specifically to design gene silencing/knock out systems in order to confer herbicide or pathogen resistance to plants, see col. 16-17.

In regards to the prior art teaching away from the use of satellite RNA viruses for silencing of endogenous plant genes. First, it is noted that none of the cited references were used to support the present rejection. Secondly, although several of the cited references teach that there is a high level of heterogeneity in the STMV genome, there is no direct evidence that high

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heterogeneity is common among all satellite RNA viruses, and there is no comparison set forth between non-satellite RNA viruses and other satellite viruses. Lastly, it is noted that none of the cited references generically suggest that satellite RNA viruses should not be used as vectors for silencing of endogenous plant genes.

***Conclusion***

2. Claims 39-42 and 50-52 are free of the prior art for the reasons of record in the Official Action mailed 12-14-2001.

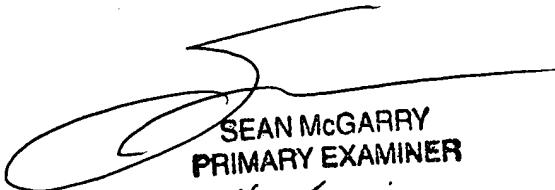
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L. Epps-Ford, Ph.D. whose telephone number is 703-308-8883. The examiner can normally be reached on M-T, Thurs-Fri, 8:30AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John L. LeGuyader can be reached on 703-308-0447. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-746-5143 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Janet L. Epps-Ford, Ph.D.  
Examiner  
Art Unit 1635

JLE  
June 24, 2003

  
SEAN McGARRY  
PRIMARY EXAMINER  
1635